

SEQUENCE LISTING

<110> E.I. du Pont de Nemours and Company

<120> Aspartate Kinase

<130> BB1430 PCT

<140>

<141>

<150> 60/172944

<151> 1999-12-21

<160> 24

<170> Microsoft Office 97

<210> 1

<211> 565

<212> DNA

<213> Zea mays

<220>

<221> unsure

<222> (127)

<400> 1

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cagccaatga ctgcaaaact gtgtttctgt tttagaactg tttgcagaca ccagtgagct 480
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<210> 2

<211> 97

<212> PRT

<213> Zea mays

<220>

<221> UNSURE

<222> (42)

<400> 2

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Gln Arg Ala Ile Ile Ser Leu Ile Gly Asn Val Glu Gln Ser Ser Leu
          20          25          30
Ile Leu Glu Lys Thr Gly Arg Val Leu Xaa Glu Ser Gly Val Asn Val
          35          40          45

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Gln Met Ile Ser Gln Gly Ala Ser Lys Val Asn Met Ser Leu Ile Val
50 55 60

His Asp Ser Asp Ala Lys Ala Leu Val Glu Ala Leu His Gln Ala Phe
65 70 75 80

Phe Glu Asp Asp Val Leu Ser Gln Val Glu Ala Glu Asn Leu Leu Val
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Gly

<210> 3
<211> 513
<212> DNA
<213> Zea mays

<220>
<221> unsure
<222> (474)

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cgctgggcca agcaagcgga cggcggggac ggcgtccttg gggcgccctgt tctcgaggag 240
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<210> 4
<211> 152
<212> PRT
<213> Zea mays

<400> 4
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1 5 10 15

Ala Pro Arg Arg Leu Val Pro Ser Ile Pro Pro Ala Ser Ser Gly His
20 25 30

Val Arg Gly Leu Ala Cys Phe Gly Thr Arg Thr Gly Pro Arg Gly Ala
35 40 45

Arg Gly Leu Ser Met Val Val Ala Asp Ser Thr Ser Arg Arg Ala Lys
50 55 60

Gln Ala Asp Gly Gly Asp Gly Val Leu Gly Ala Pro Val Leu Gly Gly
65 70 75 80

Leu Gly Met Glu Gly Leu Gly Asp Gln Leu Ser Val Val Met Lys Phe
85 90 95

Gly Gly Ser Ser Val Ser Ser Ala Ala Arg Met Ala Glu Val Ala Gly
100 105 110

Leu Ile Leu Thr Phe Pro Glu Arg Pro Val Val Val Leu Ser Ala
115 120 125

Met Gly Lys Thr Thr Asn Leu Leu Leu Ala Gly Arg Lys Gly Asn
130 135 140

Lys Val Trp Ser Tyr His Val Phe
145 150

<210> 5
<211> 1985
<212> DNA
<213> Zea mays

<220>
<221> unsure
<222> (532)

<220>
<221> unsure
<222> (1180)

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cttcgtatcc cgaaccgggc ctccgcggtgc aagagggttg tcaatgtgtg tcgccgactc 180
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<210> 6
 <211> 560
 <212> PRT
 <213> Zea mays

<220>
 <221> UNSURE
 <222> (168)

<220>
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 <222> (384)

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 Gly Thr Arg Thr Gly Pro Arg Gly Ala Arg Gly Leu Ser Met Val Val
 35 40 45
 Ala Asp Ser Thr Ser Arg Arg Ala Lys Gln Ala Asp Gly Gly Asp Gly
 50 55 60
 Val Leu Gly Ala Pro Val Leu Gly Gly Leu Gly Met Glu Gly Leu Gly
 65 70 75 80
 Asp Gln Leu Ser Val Val Met Lys Phe Gly Gly Ser Ser Val Ser Ser
 85 90 95
 Ala Ala Arg Met Ala Glu Val Ala Gly Leu Ile Leu Thr Phe Pro Glu
 100 105 110
 Glu Arg Pro Val Val Val Leu Ser Ala Met Gly Lys Thr Thr Asn Asn
 115 120 125
 Leu Leu Leu Ala Gly Glu Lys Ala Val Gly Cys Gly Val Ile His Val
 130 135 140
 Ser Glu Ile Glu Glu Trp Asn Met Val Lys Ser Leu His Ile Lys Thr
 145 150 155 160
 Val Asp Glu Leu Gly Leu Pro Xaa Ile Cys Asn Thr Ser Leu Tyr Glu
 165 170 175
 Leu Glu Gln Leu Leu Lys Gly Ile Ala Met Met Lys Glu Leu Thr Pro
 180 185 190
 Arg Thr Ser Asp Tyr Leu Val Ser Phe Gly Glu Cys Met Ser Thr Arg
 195 200 205
 Ile Phe Ser Ala Tyr Leu Asn Lys Ile Arg Val Lys Ala Arg Gln Tyr
 210 215 220
 Asp Ala Phe Asp Ile Gly Phe Ile Thr Thr Asp Glu Phe Gly Asn Ala
 225 230 235 240

Asp Ile Leu Glu Ala Thr Tyr Pro Ala Val Ala Lys Arg Leu His Gly
 245 250 255
 Asp Trp Ile Gln Asp Pro Ala Ile Pro Val Val Thr Gly Phe Leu Gly
 260 265 270
 Lys Gly Trp Lys Ser Gly Ala Val Thr Thr Leu Gly Arg Gly Gly Ser
 275 280 285
 Asp Leu Thr Ala Thr Thr Ile Gly Lys Ala Leu Gly Leu Arg Glu Ile
 290 295 300
 Gln Val Trp Lys Asp Val Asp Gly Val Leu Thr Cys Asp Pro Asn Ile
 305 310 315 320
 Tyr Pro His Ala Lys Thr Val Pro Tyr Leu Thr Phe Glu Glu Ala Thr
 325 330 335
 Glu Leu Ala Tyr Phe Gly Ala Gln Val Leu His Pro Gln Ser Met Arg
 340 345 350
 Pro Ala Arg Glu Gly Asp Ile Pro Val Arg Val Lys Asn Ser Tyr Asn
 355 360 365
 Pro Lys Ala Pro Gly Thr Leu Ile Thr Arg Gln Arg Asp Met Asp Xaa
 370 375 380
 Gly Leu Val Val Leu Thr Ser Ile Val Leu Lys Ser Asn Val Thr Met
 385 390 395 400
 Leu Asp Ile Val Ser Thr Arg Met Leu Gly Gln Tyr Gly Phe Leu Ala
 405 410 415
 Arg Val Ser Gly Ile Cys Tyr Ile Glu Asp Leu Cys Ile Ser Val Asp
 420 425 430
 Cys Val Ala Thr Ser Glu Val Ser Val Ser Val Ser Leu Asp Pro Ser
 435 440 445
 Lys Ile Trp Ser Arg Glu Leu Ile Gln Gln Ala Ser Glu Leu Asp His
 450 455 460
 Val Val Glu Glu Leu Glu Lys Ile Ala Ile Val Arg Leu Leu Gln Gln
 465 470 475 480
 Arg Ala Ile Ile Ser Leu Ile Gly Asn Val Glu Gln Ser Ser Leu Ile
 485 490 495
 Leu Glu Lys Thr Gly Arg Val Leu Arg Lys Ser Gly Val Asn Val Gln
 500 505 510
 Met Ile Ser Gln Gly Ala Ser Lys Val Asn Met Ser Leu Ile Val His
 515 520 525
 Asp Ser Asp Ala Lys Ala Leu Val Glu Ala Leu His Gln Ala Phe Phe
 530 535 540
 Glu Asp Asp Val Leu Ser Gln Val Glu Ala Glu Asn Leu Leu Val Gly
 545 550 555 560

<210> 7
 <211> 1953
 <212> DNA
 <213> Zea mays

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 tgtctctaact caatatatat aataaacatt atc 1953

<210> 8
 <211> 555
 <212> PRT
 <213> Zea mays

<400> 8
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 Gly Thr Arg Thr Gly Pro Arg Gly Ala Arg Gly Leu Ser Met Val Val
 35 40 45
 Ala Asp Ser Thr Ser Arg Arg Ala Lys Gln Ala Asp Gly Gly Asp Gly
 50 55 60

Val Leu Gly Ala Pro Val Leu Gly Gly Leu Gly Met Glu Gly Leu Gly
 65 70 75 80
 Asp Gln Leu Ser Val Val Met Lys Phe Gly Gly Ser Ser Val Ser Ser
 85 90 95
 Ala Ala Arg Met Ala Glu Val Ala Gly Leu Ile Leu Thr Phe Pro Glu
 100 105 110
 Glu Arg Pro Val Val Val Leu Ser Ala Met Gly Lys Thr Thr Asn Asn
 115 120 125
 Leu Leu Leu Ala Gly Glu Lys Ala Val Gly Cys Gly Val Ile His Val
 130 135 140
 Ser Glu Ile Glu Glu Trp Asn Met Val Lys Ser Leu His Ile Lys Thr
 145 150 155 160
 Val Asp Glu Leu Gly Leu Pro Arg Ser Val Ile Gln Asp Met Leu Asp
 165 170 175
 Glu Leu Glu Gln Leu Leu Lys Gly Ile Ala Met Met Lys Glu Leu Thr
 180 185 190
 Pro Arg Thr Ser Asp Tyr Leu Val Ser Phe Gly Glu Cys Met Ser Thr
 195 200 205
 Arg Ile Phe Ser Ala Tyr Leu Asn Lys Ile Arg Val Lys Ala Arg Gln
 210 215 220
 Tyr Asp Ala Phe Asp Ile Gly Phe Ile Thr Thr Asp Glu Phe Gly Asn
 225 230 235 240
 Ala Asp Ile Leu Glu Ala Thr Tyr Pro Ala Val Ala Lys Arg Leu His
 245 250 255
 Gly Asp Trp Ile Gln Asp Pro Ala Ile Pro Val Val Thr Gly Phe Leu
 260 265 270
 Gly Lys Gly Trp Lys Ser Gly Ala Val Thr Thr Leu Gly Arg Gly Gly
 275 280 285
 Ser Asp Leu Thr Ala Thr Thr Ile Gly Lys Ala Leu Gly Leu Arg Glu
 290 295 300
 Ile Gln Val Trp Lys Asp Val Asp Gly Val Leu Thr Cys Asp Pro Asn
 305 310 315 320
 Ile Tyr Pro His Ala Lys Thr Val Pro Tyr Leu Thr Phe Glu Glu Ala
 325 330 335
 Thr Glu Leu Ala Tyr Phe Gly Ala Gln Val Leu His Pro Gln Ser Met
 340 345 350
 Arg Pro Ala Arg Glu Gly Asp Ile Pro Val Arg Val Lys Asn Ser Tyr
 355 360 365
 Asn Pro Lys Ala Pro Gly Thr Leu Ile Thr Arg Gln Arg Asp Met Asp
 370 375 380

Lys Val Val Leu Thr Ser Ile Val Leu Lys Ser Asn Val Thr Met Leu
 385 390 395 400
 Asp Ile Val Ser Thr Arg Met Leu Gly Gln Tyr Gly Phe Leu Ala Arg
 405 410 415
 Val Phe Ala Ile Phe Glu Asp Leu Cys Ile Ser Val Asp Cys Val Ala
 420 425 430
 Thr Ser Glu Val Ser Val Ser Val Ser Leu Asp Pro Ser Lys Ile Trp
 435 440 445
 Ser Arg Glu Leu Ile Gln Gln Glu Leu Asp His Val Val Glu Glu Leu
 450 455 460
 Glu Lys Ile Ala Ile Val Arg Leu Leu Gln Gln Arg Ala Ile Ile Ser
 465 470 475 480
 Leu Ile Gly Asn Val Glu Gln Ser Ser Leu Ile Leu Glu Lys Thr Gly
 485 490 495
 Arg Val Leu Arg Lys Ser Gly Val Asn Val Gln Met Ile Ser Gln Gly
 500 505 510
 Ala Ser Lys Val Asn Met Ser Leu Ile Val His Asp Ser Asp Ala Lys
 515 520 525
 Ala Leu Val Glu Ala Leu His Gln Ala Phe Phe Glu Asp Asp Val Leu
 530 535 540
 Ser Gln Val Glu Ala Glu Asn Leu Leu Val Gly
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<210> 9
 <211> 455
 <212> DNA
 <213> *Oryza sativa*

<220>
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 <222> (366)

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 aatccaatca cccgtgaacc tccttgcaac agcaggatat gtcgcttcaa gaatgtccgc 180
 atttgtaaaa tcatcagtag ttataaagcc aatatcaaat gcatcatact gccgagcctt 240
 ttcccaagt ttattcaaat atgcaagcaa atattcttgt agacatgcat tcaccgaagg 300
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<210> 10
 <211> 114
 <212> PRT
 <213> Oryza sativa

<400> 10
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 Gly Lys Lys Ala Arg Gln Tyr Asp Ala Phe Asp Ile Gly Phe Ile Thr
 35 40 45
 Thr Asp Asp Phe Thr Asn Ala Asp Ile Leu Glu Ala Thr Tyr Pro Ala
 50 55 60
 Val Ala Lys Arg Leu Gln Gly Asp Trp Ile Asp Asp Pro Ala Ile Pro
 65 70 75 80
 Ile Val Thr Gly Phe Leu Gly Lys Gly Trp Lys Ser Cys Ala Val Thr
 85 90 95
 Thr Leu Gly Arg Gly Gly Ser Asp Leu Thr Ala Thr Thr Ile Gly Lys
 100 105 110
 Ala Leu

<210> 11
 <211> 847
 <212> DNA
 <213> Oryza sativa

<400> 11
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 ttgtctcaca caaggacgac gcggcgctcg tggccgcccgc cgccgcctcc tcgcgacgg 180
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acctgtctat tcctatagtt actggtttcc ttggaaaagg atggaaatca tgtgctgtca 780
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<210> 12

<211> 281

<212> FRT

<213> Oryza sativa

<400> 12

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Pro Pro Arg Val Gly Arg Glu Gln Gln Tyr Leu Ala Cys Ala Ala Ala
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Ala Arg Pro Gly Gly Arg Cys Ser Arg Arg Arg Gly Leu Val Val Arg
      20           25           30

Cys Gln Ser Gly Ala Ala Ala Val Val Leu Asn Lys Asp Asp Ala Ala
      35           40           45

Ser Val Ala Ala Ala Ala Ala Ser Ser Ala Thr Gly Phe Thr Val Ala
      50           55           60

Met Lys Phe Gly Gly Ser Ser Val Ala Ser Ala Glu Arg Met Arg Glu
      65           70           75           80

Val Ala Asp Leu Ile Leu Ser Phe Pro Glu Glu Thr Pro Val Val Val
      85           90           95

Leu Ser Ala Met Gly Lys Thr Thr Asn Asn Leu Leu Leu Ala Gly Glu
      100          105          110

Lys Ala Val Ser Cys Gly Ala Pro Lys Ala Ser Glu Ile Pro Glu Leu
      115          120          125

Ala Val Ile Lys Glu Leu His Val Arg Thr Ile Asp Glu Leu Gly Leu
      130          135          140

Asp Arg Ser Ile Val Ser Gly Leu Leu Glu Glu Leu Glu Gln Leu Leu
      145          150          155          160

Lys Gly Val Ala Met Met Lys Glu Leu Thr Pro Arg Thr Arg Asp Tyr
      165          170          175

Leu Val Ser Phe Gly Glu Cys Met Ser Thr Arg Ile Phe Ala Ala Tyr
      180          185          190

Leu Asn Lys Leu Gly Lys Lys Ala Arg Gln Tyr Asp Ala Phe Asp Ile
      195          200          205

Gly Phe Ile Thr Thr Asp Asp Phe Thr Asn Ala Asp Ile Leu Glu Ala
      210          215          220

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Thr Tyr Pro Ala Val Ala Lys Arg Leu Gln Gly Asp Trp Ile Asp Asp
225                230                235                240

Pro Ala Ile Pro Ile Val Thr Gly Phe Leu Gly Lys Gly Trp Lys Ser
                245                250                255

Cys Ala Val Thr Thr Leu Gly Arg Gly Gly Ser Asp Leu Thr Ala Thr
                260                265                270

Thr Ile Gly Lys Ala Leu Arg Thr Arg
                275                280

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<210> 13
<211> 646
<212> DNA
<213> Triticum aestivum

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<220>
<221> unsure
<222> (289)

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<220>
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<222> (329)

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<220>
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<220>
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<220>
<221> unsure
<222> (551)

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<220>
<221> unsure
<222> (582) .. (583)

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<220>
<221> unsure
<222> (616)

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<220>
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<220>
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<220>
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<220>

<221> unsure

<222> (640)

<400> 13

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ggacgagttg  gagcaactgc  tcaaggggtg  tgctatgatg  aaagagctga  ctcttaggac  180
acgagattac  cttgtttcct  ttggtgaatg  catgtctaca  agaatttttt  ctgcataatt  240
gaataaacta  gggaagaagg  cacgacagta  tgatgctttt  gatcttggn  ttataaccac  300
tgagacgatt  ccacaaatgc  cgatatccnc  gaacaactta  tcctgctggt  gcaaagagct  360
acatgggaat  tggttgatga  ccctgctatc  ccnatatgac  ggttcccttg  ggaagggatg  420
gaactttgtc  ggcanaactt  aggaaggggc  ggaatgactt  gacggcacia  ccatgggaaa  480
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aaaccggaca  ntaccactta  ctttgtaggg  accgaacttc  tnnnttgga  agtttgacca  600
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<210> 14

<211> 146

<212> PRT

<213> Triticum aestivum

<220>

<221> UNSURE

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<220>

<221> UNSURE

<222> (131)

<220>

<221> UNSURE

<222> (145)

<400> 14

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Ser Ser Ile Val Ser Gly Phe Leu Asp Glu Leu Glu Gln Leu Leu Lys
      35             40             45

Gly Val Ala Met Met Lys Glu Leu Thr Leu Arg Thr Arg Asp Tyr Leu
      50             55             60

Val Ser Phe Gly Glu Cys Met Ser Thr Arg Ile Phe Ser Ala Tyr Leu
      65             70             75             80

Asn Lys Leu Gly Lys Lys Ala Arg Gln Tyr Asp Ala Phe Asp Leu Gly
      85             90             95

Phe Ile Thr Thr Gly Arg Phe Pro Gln Met Pro Ile Ser Xaa Asn Asn
      100            105            110

Leu Ser Cys Cys Cys Lys Glu Leu His Gly Asn Trp Leu Met Thr Leu
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Leu Ser Xaa Tyr Asp Gly Ser Leu Gly Lys Gly Trp Asn Leu Cys Gly
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Xaa Thr
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<211> 1658
<212> DNA
<213> Triticum aestivum

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acttttgatg aggcagctga acttgcttat tttggtgcac aggttttgca tccccaatcc 660
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gcacgtggca ctgtgatcac taaaacaaga gatatgcgca agagcatatt aaccagcatt 780
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ctctacagc acagatcaat catttccctg atagggaatg tgcagagatc gtctctgatt 1080
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acttatcctt ggtgtctctc taccaaatca taaatagat gtgtgtgtt cctccaaaaa 1620
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa 1658

<210> 16
<211> 439
<212> PRT
<213> Triticum aestivum

<400> 16
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20 25 30
Leu Gly Leu Asp Ser Ser Ile Val Ser Gly Phe Leu Asp Glu Leu Glu
35 40 45
Gln Leu Leu Lys Gly Val Ala Met Met Lys Glu Leu Thr Leu Arg Thr
50 55 60

Arg Asp Tyr Leu Val Ser Phe Gly Glu Cys Met Ser Thr Arg Ile Phe
 65 70 75 80
 Ser Ala Tyr Leu Asn Lys Leu Gly Lys Lys Ala Arg Gln Tyr Asp Ala
 85 90 95
 Phe Asp Leu Gly Phe Ile Thr Thr Asp Asp Phe Thr Asn Ala Asp Ile
 100 105 110
 Leu Glu Ala Thr Tyr Pro Ala Val Ala Lys Arg Leu His Gly Asp Trp
 115 120 125
 Ile Asp Asp Pro Ala Ile Pro Ile Val Thr Gly Phe Leu Gly Lys Gly
 130 135 140
 Trp Lys Ser Cys Ala Val Thr Thr Leu Gly Arg Gly Gly Ser Asp Leu
 145 150 155 160
 Thr Ala Thr Thr Ile Gly Lys Ala Leu Gly Leu Arg Glu Ile Gln Val
 165 170 175
 Trp Lys Asp Val Asp Gly Val Leu Thr Cys Asp Pro Asn Ile Tyr Ala
 180 185 190
 Asn Ala Val Pro Val Pro Tyr Leu Thr Phe Asp Glu Ala Ala Glu Leu
 195 200 205
 Ala Tyr Phe Gly Ala Gln Val Leu His Pro Gln Ser Met Arg Pro Ala
 210 215 220
 Arg Glu Gly Gly Ile Pro Val Arg Val Lys Asn Ser Tyr Asn Arg His
 225 230 235 240
 Ala Pro Gly Thr Val Ile Thr Lys Thr Arg Asp Met Arg Lys Ser Ile
 245 250 255
 Leu Thr Ser Ile Val Leu Lys Ser Asn Ile Thr Met Leu Asp Ile Val
 260 265 270
 Ser Thr Arg Met Leu Gly Gln Tyr Gly Phe Leu Ala Lys Val Phe Ser
 275 280 285
 Ile Phe Glu Asp Leu Gly Ile Ser Val Asp Ser Val Ala Thr Ser Glu
 290 295 300
 Val Ser Ile Ser Leu Thr Leu Asp Pro Ser Lys Leu Trp Ser Arg Glu
 305 310 315 320
 Leu Ile Gln Gln Glu Leu Asp His Val Val Glu Glu Leu Glu Lys Ile
 325 330 335
 Ala Val Val His Leu Leu Gln His Arg Ser Ile Ile Ser Leu Ile Gly
 340 345 350
 Asn Val Gln Arg Ser Ser Leu Ile Leu Glu Lys Ala Phe Asn Val Leu
 355 360 365
 Arg Arg Asn Gly Val Asn Val Gln Met Ile Ser Gln Gly Ala Ser Lys
 370 375 380

Val Asn Ile Ser Leu Val Val Asn Asp Ser Glu Ala Lys Gln Cys Val
 385 390 395 400
 Gln Ala Leu His Ser Ala Phe Phe Glu Asn Gly Phe Leu Ser Glu Val
 405 410 415
 Glu Glu Ala Asp Leu Ala Gln Lys Arg Ala Pro Val Leu Val Ser Ser
 420 425 430
 Asn Gly Ala Ile Asn Gly Asn
 435

<210> 17
 <211> 564
 <212> PRT
 <213> Glycine max

<400> 17
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 20 25 30
 Gly Phe Ala Ala Leu Gly Ala Pro Val Cys Ala Arg Arg Val Trp Gly
 35 40 45
 Asn Arg Val Ala Phe Ser Val Thr Thr Cys Lys Ala Ser Thr Ser Asp
 50 55 60
 Val Ile Glu Lys Asn Ala Thr Glu Asn Gly Met Val Ser Ser Glu Gly
 65 70 75 80
 Glu Thr Ser Phe Thr Cys Val Met Lys Phe Gly Gly Ser Ser Val Ala
 85 90 95
 Ser Ala Asp Arg Met Lys Glu Val Ala Thr Leu Ile Leu Ser Phe Pro
 100 105 110
 Glu Glu Arg Pro Ile Val Val Leu Ser Ala Met Gly Lys Thr Thr Asn
 115 120 125
 Lys Leu Leu Leu Ala Gly Glu Lys Ala Val Ser Cys Gly Val Ile Asn
 130 135 140
 Val Ser Ser Ile Glu Glu Leu Cys Phe Ile Lys Asp Leu His Leu Arg
 145 150 155 160
 Thr Val Asp Gln Leu Gly Val Asp Gly Ser Val Ile Ser Lys His Leu
 165 170 175
 Glu Glu Leu Glu Gln Leu Leu Lys Gly Ile Ala Met Met Lys Glu Leu
 180 185 190
 Thr Lys Arg Thr Gln Asp Tyr Leu Val Ser Phe Gly Glu Cys Met Ser
 195 200 205

Thr Arg Ile Phe Ala Ala Tyr Leu Asn Lys Ile Gly Val Lys Ala Arg
 210 215 220
 Gln Tyr Asp Ala Phe Glu Ile Gly Phe Ile Thr Thr Asp Asp Phe Thr
 225 230 235 240
 Asn Ala Asp Ile Leu Glu Ala Thr Tyr Pro Ala Val Ala Lys Arg Leu
 245 250 255
 His Gly Asp Trp Leu Ser Asp Pro Ala Ile Ala Ile Val Thr Gly Phe
 260 265 270
 Leu Gly Lys Ala Arg Lys Ser Cys Ala Val Thr Thr Leu Gly Arg Gly
 275 280 285
 Gly Ser Asp Leu Thr Ala Thr Thr Ile Gly Lys Ala Leu Gly Leu Pro
 290 295 300
 Glu Ile Gln Val Trp Lys Asp Val Asp Gly Val Leu Thr Cys Asp Pro
 305 310 315 320
 Asn Ile Tyr Pro Lys Ala Glu Pro Val Pro Tyr Leu Thr Phe Asp Glu
 325 330 335
 Ala Ala Glu Leu Ala Tyr Phe Gly Ala Gln Val Leu His Pro Gln Ser
 340 345 350
 Met Arg Pro Ala Arg Glu Ser Asp Ile Pro Val Arg Val Lys Asn Ser
 355 360 365
 Tyr Asn Pro Lys Ala Pro Gly Thr Leu Ile Thr Lys Ala Arg Asp Met
 370 375 380
 Ser Lys Ala Val Leu Thr Ser Ile Val Leu Lys Arg Asn Val Thr Met
 385 390 395 400
 Leu Asp Ile Ala Ser Thr Arg Met Leu Gly Gln Tyr Gly Phe Leu Ala
 405 410 415
 Lys Val Phe Ser Ile Phe Glu Glu Leu Gly Ile Ser Val Asp Val Val
 420 425 430
 Ala Thr Ser Glu Val Ser Val Ser Leu Thr Leu Asp Pro Ser Lys Leu
 435 440 445
 Trp Ser Arg Glu Leu Ile Gln Gln Ala Ser Glu Leu Asp His Val Val
 450 455 460
 Glu Glu Leu Glu Lys Ile Ala Val Val Asn Leu Leu Gln Asn Arg Ser
 465 470 475 480
 Ile Ile Ser Leu Ile Gly Asn Val Gln Arg Ser Ser Leu Ile Leu Glu
 485 490 495
 Arg Leu Ser Arg Val Leu Arg Thr Leu Gly Val Thr Val Gln Met Ile
 500 505 510
 Ser Gln Gly Ala Ser Lys Val Asn Ile Ser Leu Val Val Asn Asp Ser
 515 520 525

Glu Ala Glu Gln Cys Val Arg Ala Leu His Ser Ala Phe Phe Glu Ser
530 535 540

Glu Leu Ser Glu Leu Glu Met Asp Tyr Lys Asn Gly Asn Gly Ser Val
545 550 555 560

Asp Glu Leu Ser

<210> 18

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 18

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17

<210> 19

<211> 27

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 19

gactggtacc tcagccccacg agtaggt

27

<210> 20

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 20

gactccatgg agggattggg gga

23

<210> 21

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 21

gttttcccca tggcagaga

19

<210> 22

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 22

ttagtggttc tgtgttactt gatccatcaa ag

32

<210> 23

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 23

ctttgatgga tcaagtaaca cagaaacact aac

33

<210> 24

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic oligonucleotide

<400> 24

gactccatgg caatccagc gcg

23